## EXHIBIT A

## SEQUENCE LISTING

<1110>								•••						
	YOSHINA	SA, SI	EVEN	KIY	OSHI									
<120>	POLYPEP	FIDES	INVO	LVED	IN	IMMU	JNE I	RESPO	ONSE					
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atg aa Met Ly 1  ctt tt Leu Le  ttt ca Phe Hi  cag ca	g ccg tad s Pro Ty:  a aca gg: u Thr Gl: 20 c aat gg: s Asn Gl:	Phe 5 a gaa 7 Glu a ggt 7 Gly a atg	Cys atc Ile gta Val cga:	Arg aat Asn cag Gln	yal ggc Gly att Ile 40	Phe tcg Ser 25 tct Ser	Val 10 gcc Ala tgt Cys	Phe gat Asp aaa Lys	Cys cat His tac Tyr	Phe agg Arg cct Pro 45	Leu atg Met 30 gag Glu	Ile 15 ttt Phe act Thr	tca Ser gtc Val	96
atg aa Met Ly 1  ctt tt Leu Le  ttt ca Phe Hi  cag ca Gln Gl 50  ctc ac	g ccg tag s Pro Ty:  a aca ggg u Thr Gl 20 c aat ggs s Asn Gl 35 g tta aas	Phe 5  a gaa / Glu  a ggt / Gly  a atg Met  a aag	Cys atc Ile gta Val cga Arg	aat Asn cag Gln ttg Leu 55	yal ggc Gly att Ile 40 ttc Phe	Phe tcg Ser 25 tct Ser aga Arg	Val 10 gcc Ala tgt Cys gag Glu	gat Asp aaa Lys aga Arg	Cys cat His tac Tyr gaa Glu 60	Phe agg Arg cct Pro 45 gtc Val	atg Met 30 gag Glu ctc Leu	Ile 15 ttt Phe act Thr tgc Cys	Arg tca Ser gtc Val gaa Glu cca	96 144
atg aa Met Ly 1  ctt tt Leu Le  ttt ca Phe Hi  cag ca Gln Gl 50  ctc ac Leu Th 65	g ccg tag s Pro Ty:  a aca ggg u Thr Gl 20 c aat ggg s Asn Gl 35 g tta aag t Leu Ly: c aag acc	Phe 5 a gaa 7 Glu a ggt 7 Gly a atg 8 Met a aag 1 Lys	Cys atc Ile gta Val cga Arg gga Gly 70 cat	aat Asn cag Gln ttg Leu 55 agc Ser	yal ggc Gly att Ile 40 ttc Phe gga Gly	tcg Ser 25 tct Ser aga Arg aat Asn	Val 10 gcc Ala tgt Cys gag Glu gcg Ala aac	gat Asp aaa Lys aga Arg gtg Val 75 agc	Cys cat His tac Tyr gaa Glu 60 tcc Ser	Phe agg Arg cct Pro 45 gtc Val atc Ile	Leu atg Met 30 gag Glu ctc Leu aag Lys	Ile 15 ttt Phe act Thr tgc Cys aat Asn	Arg tca Ser gtc Val gaa Glu cca Pro 80 cta	96 144 192
atg aa Met Ly 1  ctt tt Leu Le  ttt ca Phe Hi  cag ca Gln Gl Gl Gl ac Leu Th 65  atg ct Met Le	g ccg tas s Pro Ty:  a aca ggg u Thr Gl 20 c aat ggs s Asn Gl 35 g tta aaa n Leu Ly: c aag accr Lys Thr	Phe 5 a gaa 7 Glu a ggt 7 Gly a atg E Lys a tat Tyr 85 agc Ser	Cys atc Ile gta Val cga Arg gga Gly 70 cat His	aat Asn cag Gln ttg Leu 55 agc Ser ctg Leu	yal ggc Gly att 11e 40 ttc Phe gga Gly tca Ser	Phe tcg Ser 25 tct Ser aga Arg aat Asn aac Asn	Val 10 gcc Ala tgt Cys gag Glu gcg Ala aac Asn 90 tat	gat Asp aaa Lys aga Arg gtg Va1 75 agc Ser	Cys cat His tac Tyr gaa Glu 60 tcc Ser gtc Val	Phe agg Arg cct Pro 45 gtc Val atc Ile tct Ser	atg Met 30 gag Glu ctc Leu aag Lys	Ile 15 ttt Phe act Thr tgc Cys aat Asn ttc Phe 95	tca Ser gtc Val gaa Glu cca Pro 80 cta Leu	96 144 192 240

Ile	Phe	Asp 115	Pro	Pro	Pro	Phe	Gln 120	Glu	Arg	Asn	Leu	Ser 125	Gly	Gly	Tyr	
						cag Gln 135										432
ccc Pro 145	gta Val	Gly ggg	tgt Cys	gca Ala	gct Ala 150	ttc Phe	gtt Val	gtg Val	gta Val	ctc Leu 155	ctt Leu	ttt Phe	gga Gly	tgc Cys	ata Ile 160	480
ctt Leu	atc Ile	atc Ile	tgg Trp	ttt Phe 165	tca Ser	aaa Lys	aag Lys	aaa Lys	tac Tyr 170	gga Gly	tcc Ser	agt Ser	gtg Val	cat His 175	gac Asp	528
cct Pro	aat Asn	agt Ser	gaa Glu 180	tac Tyr	atg Met	ttc Phe	atg Met	gcg Ala 185	gca Ala	gtc Val	aac Asn	aca Thr	aac Asn 190	aaa Lys	aag Lys	576
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Phe	His	Asn 35	Gly	Gly	Val	Gln	Ile 40	Ser	Суѕ	Lys	Tyr	Pro 45	Glu	Thr	Val	
Gln	Gln 50	Leu	Lys	Met	Arg	Leu 55	Phe	Arg	Glu	Arg	Glu 60	Val	Leu	Сув	Glu	
Leu 65	Thr	Lys	Thr	Lys	Gly 70	Ser	Gly	Asn	Ala	Val 75	Ser	Ile	Lys	Asn	Pro 80	
Met	Leu	Cys	Leu	Tyr 85	His	Leu	Ser	Asn	Asn 90	Ser	Val	Ser	Phe	Phe 95	Leu	
Asn	Asn	Pro	Asp 100	Ser	Ser	Gln	Gly	Ser 105	Tyr	Tyr	Phe	Cys	Ser 110	Leu	Ser	
Ile	Phe	Asp 115	Pro	Pro	Pro	Phe	Gln 120	Glu	Arg	Asn	Leu	Ser 125	Gly	Gly	Tyr	
Leu	His	Ile	Tyr	Glu	Ser	Gln	Leu	Cys	Cys	Gln	Leu	Lys	Leu	Trp	Leu	

130 135 140

Pro Val Gly Cys Ala Ala Phe Val Val Val Leu Leu Phe Gly Cys Ile 145  $\phantom{\bigg|}150\phantom{\bigg|}150\phantom{\bigg|}155\phantom{\bigg|}$ 

Leu Ile Ile Trp Phe Ser Lys Lys Lys Tyr Gly Ser Ser Val His Asp 165 170 175

Pro Asn Ser Glu Tyr Met Phe Met Ala Ala Val Asn Thr Asn Lys Lys

Ser Arg Leu Ala Gly Val Thr Ser 195 200

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<213> Mus musculus

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Phe His Asn Gly Gly Val Gln Ile Ser Cys Lys Tyr Pro Glu Thr Val 35

Gln Gln Leu Lys Met Arg Leu Phe Arg Glu Arg Glu Val Leu Cys Glu 50 60

Leu Thr Lys Thr Lys Gly Ser Gly Asn Ala Val Ser Ile Lys Asn Pro 65 70 75 80

Met Leu Cys Leu Tyr His Leu Ser Asn Asn Ser Val Ser Phe Phe Leu 85 90 90 95

Asn Asn Pro Asp Ser Ser Gln Gly Ser Tyr Tyr Phe Cys Ser Leu Ser

Ile Phe Asp Pro Pro Pro Phe Gln Glu Arg Asn Leu Ser Gly Gly Tyr 115 120 125

Leu His Ile Tyr Glu Ser Gln Leu Cys Cys Gln Leu Lys Leu Trp Leu 130 135 140

Pro Val Gly Cys Ala Ala Phe Val Val Val Leu Leu Phe Gly Cys Ile 145 150 155 160 Leu Ile Ile Trp Phe Ser Lys Lys Lys Tyr Gly Ser Ser Val His Asp

Pro Asn Ser Glu Tyr Met Phe Met Ala Ala Val Asn Thr Asn Lys Lys

Ser Arg Leu Ala Gly Val Thr Ser

<210> 4 <211> 218 <212> PRT

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Val Thr Glu Asn Lys Ile Leu Val Lys Gln Ser Pro Leu Leu Val Val 20 25 30

Asp Ser Asn Glu Val Ser Leu Ser Cys Arg Tyr Ser Tyr Asn Leu Leu

Ala Lys Glu Phe Arg Ala Ser Leu Tyr Lys Gly Val Asn Ser Asp Val

Glu Val Cys Val Gly Asn Gly Asn Phe Thr Tyr Gln Pro Gln Phe Arg

Ser Asn Ala Glu Phe Asn Cys Asp Gly Asp Phe Asp Asn Glu Thr Val

Thr Phe Arg Leu Trp Asn Leu His Val Asn His Thr Asp Ile Tyr Phe

Cys Lys Ile Glu Phe Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Arg 120

Ser Asn Gly Thr Ile Ile His Ile Lys Glu Lys His Leu Cys His Thr

Gln Ser Ser Pro Lys Leu Phe Trp Ala Leu Val Val Ala Gly Val

Leu Phe Cys Tyr Gly Leu Leu Val Thr Val Ala Leu Cys Val Ile Trp 165 170 175

Thr Asn Ser Arg Arg Asn Arg Leu Leu Gln Val Thr Thr Met Asn Met 180 185 Thr Pro Arg Arg Pro Gly Leu Thr Arg Lys Pro Tyr Gln Pro Tyr Ala 200 Pro Ala Arg Asp Phe Ala Ala Tvr Arg Pro 215 <210> <211> 44 <212> PRT <213> Artificial sequence <220> <223> Synthetic <400> 5 Met Arg Leu Leu Val Ser Cys Tyr Leu Val Cys Cys Asn Val Phe Leu Asn Tyr Phe Cys Pro Pro Pro Ser Gly His Ile Glu Leu Cys Lys Leu 20 25 30 Trp Leu Val Phe Leu Leu Leu Ile Trp Pro Arg Ala 40 <210> 6 966 <211> <212> DNA Mus musculus <220> <221> CDS <222> (1)..(966) atg cag cta aag tgt ccc tgt ttt gtg tcc ttg gga acc agg cag cct Met Gln Leu Lys Cys Pro Cys Phe Val Ser Leu Gly Thr Arg Gln Pro gtt tgg aag aag ctc cat gtt tot age ggg tte ttt tet ggt ett ggt Val Trp Lys Lys Leu His Val Ser Ser Gly Phe Phe Ser Gly Leu Gly

gaa gtc ggt gca atg gtg ggc agc aat gtg gtg ctc agc tgc att gac Glu Val Gly Ala Met Val Gly Ser Asn Val Val Leu Ser Cys Ile Asp 50 60 60 ccc cac aga cgc cat ttc aac ttg agt ggt ctg tat gtc tat tgg caa Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr Trp Gln

20 25 30 ctg ttc ttg ctg ctg ttg agc agc ctc tgt gct gcc tct gca gag act Leu Phe Leu Leu Leu Ser Ser Leu Cys Ala Ala Ser Ala Glu Thr

48

96

144

65					70					75					80	
atc Ile	gaa Glu	aac Asn	cca Pro	gaa Glu 85	gtt Val	tcg Ser	gtg Val	act Thr	tac Tyr 90	tac Tyr	ctg Leu	cct Pro	tac Tyr	aag Lys 95	tct Ser	288
cca Pro	Gly ggg	atc Ile	aat Asn 100	gtg Val	gac Asp	agt Ser	tcc Ser	tac Tyr 105	aag Lys	aac Asn	agg Arg	ggc Gly	cat His 110	ctg Leu	tcc Ser	336
ctg Leu	gac Asp	tcc Ser 115	atg Met	aag Lys	cag Gln	ggt Gly	aac Asn 120	ttc Phe	tct Ser	ctg Leu	tac Tyr	ctg Leu 125	aag Lys	aat Asn	gtc Val	384
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gcc Ala 145	aca Thr	gag Glu	tta Leu	gtc Val	aag Lys 150	atc Ile	ttg Leu	gaa Glu	gag Glu	gtg Val 155	gtc Val	agg Arg	ctg Leu	cgt Arg	gtg Val 160	480
gca Ala	gca Ala	aac Asn	ttc Phe	agt Ser 165	aca Thr	cct Pro	gtc Val	atc Ile	agc Ser 170	acc Thr	tct Ser	gat Asp	agc Ser	tcc Ser 175	aac Asn	528
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gag Glu	ccc Pro	aac Asn 195	ctg Leu	tat Tyr	tgg Trp	atc Ile	aac Asn 200	aca Thr	acg Thr	gac Asp	aat Asn	agc Ser 205	cta Leu	ata Ile	gac Asp	624
acg Thr	gct Ala 210	ctg Leu	cag Gln	aat Asn	aac Asn	act Thr 215	gtc Val	tac Tyr	ttg Leu	aac Asn	aag Lys 220	ttg Leu	ggc Gly	ctg Leu	tat Tyr	672
gat Asp 225	gta Val	atc Ile	agc Ser	aca Thr	tta Leu 230	agg Arg	ctc Leu	cct Pro	tgg Trp	aca Thr 235	tct Ser	cgt Arg	ggg Gly	gat Asp	gtt Val 240	720
ctg Leu	tgc Cys	tgc Cys	gta Val	gag Glu 245	aat Asn	gtg Val	gct Ala	ctc Leu	cac His 250	cag Gln	aac Asn	atc Ile	act Thr	agc Ser 255	att Ile	768
agc Ser	cag Gln	gca Ala	gaa Glu 260	agt Ser	ttc Phe	act Thr	gga Gly	aat Asn 265	aac Asn	aca Thr	aag Lys	aac Asn	cca Pro 270	cag Gln	gaa Glu	816
acc Thr	cac His	aat Asn 275	aat Asn	gag Glu	tta Leu	aaa Lys	gtc Val 280	ctt Leu	gtc Val	ccc Pro	gtc Val	ctt Leu 285	gct Ala	gta Val	ctg Leu	864
gcg Ala	gca Ala 290	gcg Ala	gca Ala	ttc Phe	gtt Val	tcc Ser 295	ttc Phe	atc Ile	ata Ile	tac Tyr	aga Arg 300	cgc Arg	acg Thr	cgt Arg	ccc Pro	912
cac His 305	cga Arg	agc Ser	tat Tyr	aca Thr	gga Gly 310	ccc Pro	aag Lys	act Thr	gta Val	cag Gln 315	ctt Leu	gaa Glu	ctt Leu	aca Thr	gac Asp 320	960
cac His																966

<210> 7 <211> 322

<212> PRT <213> Mus musculus

<400> 7

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Val Trp Lys Lys Leu His Val Ser Ser Gly Phe Phe Ser Gly Leu Gly

Leu Phe Leu Leu Leu Ser Ser Leu Cys Ala Ala Ser Ala Glu Thr 35 40 45

Glu Val Gly Ala Met Val Gly Ser Asn Val Val Leu Ser Cys Ile Asp 50 55 60

Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr Trp Gln  $_{65}$   $\phantom{0}$  70  $\phantom{0}$  75  $\phantom{0}$  80

Ile Glu Asn Pro Glu Val Ser Val Thr Tyr Tyr Leu Pro Tyr Lys Ser 85 90 95

Pro Gly Ile Asn Val Asp Ser Ser Tyr Lys Asn Arg Gly His Leu Ser 100 105 110

Leu Asp Ser Met Lys Gln Gly Asn Phe Ser Leu Tyr Leu Lys Asn Val 115 120 125

Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met Asn Thr 130 135 140

Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu Arg Val 145 \$150\$

Ala Ala Asn Phe Ser Thr Pro Val Ile Ser Thr Ser Asp Ser Ser Asn 165 170 175

Pro Gly Gln Glu Arg Thr Tyr Thr Cys Met Ser Lys Asn Gly Tyr Pro

Glu Pro Asn Leu Tyr Trp Ile Asn Thr Thr Asp Asn Ser Leu Ile Asp 195 200 205

Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu Gly Leu Tyr 210 215 220

Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr Ser Ile  $245 \hspace{1.5cm} 250 \hspace{1.5cm} 255$ 

Ser Gln Ala Glu Ser Phe Thr Gly Asn Asn Thr Lys Asn Pro Gln Glu 260 265 270

Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala Val Leu 275 280 285

Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro  $290 \hspace{1.5cm} 295 \hspace{1.5cm} 300$ 

His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp 305 310 315

His Ala

<210>

<211> 322 <212> PRT

<213> Mus musculus

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Met Gln Leu Lys Cys Pro Cys Phe Val Ser Leu Gly Thr Arg Gln Pro 1  $\phantom{\bigg|}$  10  $\phantom{\bigg|}$  15

Val Trp Lys Lys Leu His Val Ser Ser Gly Phe Phe Ser Gly Leu Gly 20 25 30

Leu Phe Leu Leu Leu Ser Ser Leu Cys Ala Ala Ser Ala Glu Thr  $35 \hspace{1cm} 40 \hspace{1cm} 45 \hspace{1cm}$ 

Glu Val Gly Ala Met Val Gly Ser Asn Val Val Leu Ser Cys Ile Asp 50 55 60

Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr Trp Gln 65 70 75 80

Ile Glu Asn Pro Glu Val Ser Val Thr Tyr Tyr Leu Pro Tyr Lys Ser 85 90 95

Pro Gly Ile Asn Val Asp Ser Ser Tyr Lys Asn Arg Gly His Leu Ser 100 105 110

Leu Asp Ser Met Lys Gln Gly Asn Phe Ser Leu Tyr Leu Lys Asn Val  $115 \\ 120 \\ 125$ 

Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met Asn Thr 130 135 140

Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu Arg Val 145 150 160

Glu Pro Asn Leu Tyr Trp Ile Asn Thr Thr Asp Asn Ser Leu Ile Asp 195 200 205

Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu Gly Leu Tyr 210 215 220

Asp Val Ile Ser Thr Leu Arg Leu Pro Trp Thr Ser Arg Gly Asp Val 225  $\phantom{\bigg|}230\phantom{\bigg|}230\phantom{\bigg|}235\phantom{\bigg|}$ 

Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr Ser Ile  $245 \hspace{1.5cm} 250 \hspace{1.5cm} 255$ 

Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala Val Leu 275 280 285

Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro  $290 \hspace{0.5cm} 295 \hspace{0.5cm} 300 \hspace{0.5cm}$ 

His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp 305 310 315 320

His Ala

<210> 9 <211> 306

<212> PRT

<213> Mus musculus

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Met Ala Cys Asn Cys Gln Leu Met Gln Asp Thr Pro Leu Leu Lys Phe Pro Cys Pro Arg Leu Ile Leu Leu Phe Val Leu Leu Ile Arg Leu Ser Gln Val Ser Ser Asp Val Asp Glu Gln Leu Ser Lys Ser Val Lys Asp Lys Val Leu Pro Cys Arg Tyr Asn Ser Pro His Glu Asp Glu Ser Glu Asp Arg Ile Tyr Trp Gln Lys His Asp Lys Val Val Leu Ser Val Ile Ala Gly Lys Leu Lys Val Trp Pro Glu Tyr Lys Asn Arg Thr Leu Tyr Asp Asn Thr Thr Tyr Ser Leu Ile Ile Leu Gly Leu Val Leu Ser Asp Arg Gly Thr Tyr Ser Cys Val Val Gln Lys Lys Glu Arg Gly Thr Tyr Glu Val Lys His Leu Ala Leu Val Lys Leu Ser Ile Lys Ala Asp Phe Ser Thr Pro Asn Ile Thr Glu Ser Gly Asn Pro Ser Ala Asp Thr Lys Arg Ile Thr Cys Phe Ala Ser Gly Gly Phe Pro Lys Pro Arg Phe Ser Trp Leu Glu Asn Gly Arg Glu Leu Pro Gly Ile Asn Thr Thr Ile Ser Gln Asp Pro Glu Ser Glu Leu Tyr Thr Ile Ser Ser Gln Leu Asp 200 Phe Asn Thr Thr Arg Asn His Thr Ile Lys Cys Leu Ile Lys Tyr Gly 210 215 Asp Ala His Val Ser Glu Asp Phe Thr Trp Glu Lys Pro Pro Glu Asp Pro Pro Asp Ser Lys Asn Thr Leu Val Leu Phe Gly Ala Gly Phe Gly 245 250

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Ala Val Ile Thr Val Val Val Ile Val Ile Ile Lys Cys Phe Cys
Lys His Arg Ser Cys Phe Arg Arg Asn Glu Ala Ser Arg Glu Thr Asn
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Asn Ser Leu Thr Phe Gly Pro Glu Glu Ala Leu Ala Glu Gln Thr Val
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Phe Leu
305
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<211> 67
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<213> Artificial sequence
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         35
                                  40
Pro Trp Asn Ile Thr Thr Val Asn Val Val Phe Arg Ser Thr Gly
Pro Glu Thr
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Met Arg Leu Gly Ser Pro Gly Leu Leu Phe Leu Leu Phe Ser Ser Leu
cga gct gat act cag gag aag gaa gtc aga gcg atg gta ggc agc gac Arg Ala Asp Thr Glu Lys Glu Val Arg Ala Met Val Gly Ser Asp 20 _{\rm 20}
```

48

96

	gag Glu															144
gat Asp	gtt Val 50	tac Tyr	gta Val	tat Tyr	tgg Trp	caa Gln 55	acc Thr	agt Ser	gag Glu	tcg Ser	aaa Lys 60	acc Thr	gtg Val	gtg Val	acc Thr	192
tac Tyr 65	cac His	atc Ile	cca Pro	cag Gln	aac Asn 70	agc Ser	tcc Ser	ttg Leu	gaa Glu	aac Asn 75	gtg Val	gac Asp	agc Ser	cgc Arg	tac Tyr 80	240
	aac Asn															288
tcc Ser	ctg Leu	cgc Arg	ttg Leu 100	ttc Phe	aac Asn	gtc Val	acc Thr	ccc Pro 105	cag Gln	gac Asp	gag Glu	cag Gln	aag Lys 110	ttt Phe	cac His	336
tgc Cys	ctg Leu	gtg Val 115	ttg Leu	agc Ser	caa Gln	tcc Ser	ctg Leu 120	gga Gly	ttc Phe	cag Gln	gag Glu	gtt Val 125	ttg Leu	agc Ser	gtt Val	384
	gtt Val 130															432
	ccc Pro															480
	aac Asn															528
	agc Ser															576
atg Met	cgg Arg	ggc Gly 195	ttg Leu	tat Tyr	gac Asp	gtg Val	gtc Val 200	agc Ser	gtg Val	ctg Leu	agg Arg	atc Ile 205	gca Ala	cgg Arg	acc Thr	624
ccc Pro	agc Ser 210	gtg Val	aac Asn	att Ile	ggc Gly	tgc Cys 215	tgc Cys	ata Ile	gag Glu	aac Asn	gtg Val 220	ctt Leu	ctg Leu	cag Gln	cag Gln	672
aac Asn 225	ctg Leu	act Thr	gtc Val	ggc Gly	agc Ser 230	cag Gln	aca Thr	gga Gly	aat Asn	gac Asp 235	atc Ile	gga Gly	gag Glu	aga Arg	gac Asp 240	720
aag Lys	atc Ile	aca Thr	gag Glu	aat Asn 245	cca Pro	gtc Val	agt Ser	acc Thr	ggc Gly 250	gag Glu	aaa Lys	aac Asn	gcg Ala	gcc Ala 255	acg Thr	768
tgg Trp	agc Ser	atc Ile	ctg Leu 260	gct Ala	gtc Val	ctg Leu	tgc Cys	ctg Leu 265	ctt Leu	gtg Val	gtc Val	gtg Val	gcg Ala 270	gtg Val	gcc Ala	816
ata Ile	ggc Gly	tgg Trp 275	gtg Val	tgc Cys	agg Arg	gac Asp	cga Arg 280	tgc Cys	ctc Leu	caa Gln	cac His	agc Ser 285	tat Tyr	gca Ala	ggt Gly	864

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<213> Homo sapiens

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Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn

Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr

Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr 65 70 75 80

Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe

Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His

Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val

Glu Val Thr Leu His Val Ala Ala Asn Phe Ser Val Pro Val Val Ser

Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr Phe Thr Cys Thr Ser

Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp Ile Asn Lys Thr Asp

Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn

Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr 195 200 205

Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Val Leu Leu Gln Gln 210 215 220

Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp Ile Gly Glu Arg Asp 225  $\phantom{\bigg|}230\phantom{\bigg|}235\phantom{\bigg|}235\phantom{\bigg|}$ 

Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr  $245 \hspace{1.5cm} 250 \hspace{1.5cm} 255$ 

Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val Val Val Ala Val Ala 260 265 270

Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly 275 280 285

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Glu Lys Glu Val Arg Ala Met Val Gly Ser Asp Val Glu Leu Ser Cys  $1 \hspace{1cm}$  5  $\hspace{1cm}$  10  $\hspace{1cm}$  15

Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn Asp Val Tyr Val Tyr  $20 \hspace{1cm} 25 \hspace{1cm} 30$ 

Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr Tyr His Ile Pro Gln 35 40 45

Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr Arg Asn Arg Ala Leu 50 60

Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe Ser Leu Arg Leu Phe 65 70 80

Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His Cys Leu Val Leu Ser 85 90 95

Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val Glu Val Thr Leu His

Val Ala Ala Asn Phe Ser Val Pro Val Val Ser Ala Pro His Ser Pro 115 120 125

Arg Pro Asn Val Tyr Trp Ile Asn Lys Thr Asp Asn Ser Leu Leu Asp 145 150 155 160

<sup>&</sup>lt;210> 13

<sup>&</sup>lt;211> 267 <212> PRT

<sup>&</sup>lt;213> Homo sapiens

Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn Met Arg Gly Leu Tyr 165 170 175

Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr Pro Ser Val Asn Ile 180 185 190

Gly Cys Cys Ile Glu Asn Val Leu Leu Gln Gln Asn Leu Thr Val Gly 195 200 205

Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr Trp Ser Ile Leu Ala 225 230 235

Val Leu Cys Leu Leu Val Val Val Ala Val Ala Ile Gly Trp Val Cys  $245 \hspace{1.5cm} 250 \hspace{1.5cm} 255$ 

Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly

<210> 14 <211> 276

<211> 276 <212> PRT

<213> Mus musculus

<400> 14

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Ile Asp Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr 20 25 30

Trp Gln Ile Glu Asn Pro Glu Val Ser Val Thr Tyr Tyr Leu Pro Tyr 35 45

Lys Ser Pro Gly Ile Asn Val Asp Ser Ser Tyr Lys Asn Arg Gly His 50 55 60

Leu Ser Leu Asp Ser Met Lys Gln Gly Asn Phe Ser Leu Tyr Leu Lys 65 70 75 80

Asn Val Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met 85 90 95

Asn Thr Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu 100 105 110

Arg Val Ala Ala Asn Phe Ser Thr Pro Val Ile Ser Thr Ser Asp Ser

125

120

115

Ser Asn Pro Gly Gln Glu Arg Thr Tyr Thr Cys Met Ser Lys Asn Gly Tyr Pro Glu Pro Asn Leu Tyr Trp Ile Asn Thr Thr Asp Asn Ser Leu Ile Asp Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu Gly Leu Tyr Asp Val Ile Ser Thr Leu Arg Leu Pro Trp Thr Ser Arg Gly Asp Val Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr 195 200 Ser Ile Ser Gln Ala Glu Ser Phe Thr Gly Asn Asn Thr Lys Asn Pro 210 Gln Glu Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala Val Leu Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp His Ala 275 <210> 15 <211> 125 <212> PRT <213> Artificial sequence <220> <223> Synthetic <400> 15 Glu Glu Val Ala Met Val Gly Ser Val Leu Ser Cys Pro Phe Leu Tyr Val Tyr Trp Gln Val Thr Tyr Pro Ser Asn Val Asp Ser Tyr Asn Arg

Ser Met Gly Phe Ser Leu Leu Asn Val Thr Pro Gln Asp Gln Phe Cys

Val Leu Val Leu Val Ala Ala Asn Phe Ser Pro Val Ser Ser Glu Thr 50 60	
Thr Cys Ser Asn Gly Tyr Pro Pro Asn Tyr Trp Ile Asn Thr Asp Asn 65 70 75 80	
Ser Leu Asp Ala Leu Gln Asn Thr Val Leu Asn Gly Leu Tyr Asp Val 85 90 95	
Ser Leu Arg Thr Cys Cys Glu Asn Val Leu Gln Asn Thr Ser Gln Gly 100 105	
Lys Lys Leu Ala Val Leu Val Ile Arg Arg Ser Tyr Gly 115 125	
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tetecegegg eccaagttet eegegeeeg aggteteege geeegaggt eteegeggee	180
cgaggtctcc gcccgcacc atg cgg ctg ggc agt cct gga ctg ctc ttc ctg Met Arg Leu Gly Ser Pro Gly Leu Leu Phe Leu 1 5 5 10 00 10 $10$	232
ctc ttc agc agc ctt cga gct gat act cag gag aag gaa gtc aga gcg Leu Phe Ser Ser Leu Arg Ala Asp Thr Gln Glu Lys Glu Val Arg Ala $15$ $20$ $25$	280
atg gta ggc agc gtg gag ctc agc tgc gct tgc cct gaa gga agc Met Val Cly Ser Asp Val Clu Leu Ser Cys Ala Cys Pro Glu Gly Ser 30 35 40	328
cgt ttt gat tta aat gat gtt tac gta tat tgg caa acc agt gag tcg Arg Phe Asp Leu Asn Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser $45$ 50 55	376
aaa acc gtg gtg acc tac cac atc cca cag aac agc tcc ttg gaa aac Lys Thr Val Val Thr Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn 60 $00000000000000000000000000000000000$	424
gtg gac agc cgc tac cgg aac cga gcc ctg atg tca ccg gcc ggc atg Val Asp Ser Arg Tyr Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met	472

Leu Arg Gly Asp Phe Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp 100 gag cag aag agt tt cac tgc ctg gtg ttg agc caa tcc ctg gga ttc cag Glu Clu Lys Phe His Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln 110 115 120 120 125 125 125 125 125 125 125 125 125 125					80					85					90		
Glu Cln Lys Phe His Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln 110 mil 10 mil				Asp					Leu					Pro			520
Glu Val Leu Ser Val Glu Val Thr Leu His Val Āla Āla Āsn Phe Ser 130  gtg ccc gtc gtc agc gcc ccc cac agc ccc tcc cag gat gag ctc acc Val Pro Val Val Ser Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr 150  ttc acg tgt aca tcc ata aac ggc tac ccc ag ccc aac gtg tac tgg Phe Thr Cys Thr Ser Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp 160  atc aat aag acg gac aac ac agc ctg ctg gac cag gct ctg cag aat gac Ile Asn Lys Thr Asp Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp 185  acc gtc ttc ttg aac atg cgg ggc ttg tat gac ggt gtc agc ggt ctg lac agc gtg trac tgg Phe Thr Val Phe Leu Asn Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu 190  agg atc gca cgg acc cc agc gtg aca att ggc tgc ta ag gag aac Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Asp 210  agg gtc tt ctg cag aac ctg act gtc ggc agc ag aca gga aat gac Val Leu Leu Gln Gln Asn Asp 210  agg atc gca cgg acc ccc agc gtg aca att ggc tgc ta ag gag aac Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn 210  agg atc gca cgg acc ccc agc gtg aca att ggc tgc ta ag gag aac Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Asp 210  agg gtg ctt ctg cag ag acc ctg act gtc ggc agc cag aca gga aat gac Val Leu Leu Gln Gln Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp 220  atc gga gag aga gac act aca gag aac cca gtc agt acc ggc gag Ile Gly Glu Arg Asp Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu 250  alac aga ac gcg gcc act gg gac act ctg gtc tgc ctg ttg ct gt gt gtc tg tg gc tg tg tg gc ag gc cg tg tg tg gc ag gc cg tg tg tg gc ag aga acc aga acc agc tg gc gt gc gc ata ggc tg gc cg acc acc gc gt gt gc acc agc tg gc cg acc acc gc gt gc cg acc acc gc gc gt gc cc ata ggc tg gc acc acc gc gc gt gc cc acc acc gc gc gt gc cc acc acc gc gt gc cc acc acc gc tg gc tg cc acc acc gc gc gc gt gc cc acc acc gc gc gc gc gc acc acc gc gc gc gc gc gc gc acc ac	ga <b>g</b> Glu	cag Gln	Lys	ttt Phe	cac His	tgc Cys	ctg Leu	Val	ttg Leu	agc Ser	caa Gln	tcc Ser	Leu	gga Gly	ttc Phe	cag Gln	568
Val Pro Val Val Ser Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr 145 140 145 145 150 145 155 140 155 140 155 145 145 145 150 145 155 140 155 140 155 140 145 145 145 145 145 145 145 145 145 145	gag Glu	Val	ttg Leu	agc Ser	gtt Val	gag Glu	Val	aca Thr	ctg Leu	cat His	gtg Val	Ala	gca Ala	aac Asn	ttc Phe	agc Ser	616
Phe Thr Cys Tr Ser Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp 160 atc aat aag acg gac aac agc ctg ctg gac cag gct ctg cag aat gac Ile Asn Lys Thr Asp Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp 175 180 acc gtc ttc ttg aac atg cgg ggc ttg tat gac gtg gtc agc gtg ctg Thr Val Phe Leu Asn Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu 200 agg atc gca ccc agc gtg acc acg gtg acc acg gtg ctg Thr Val Phe Leu Asn Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu 200 agg atc gca cgg acc ccc agc gtg aca att ggc tgc tgc ata gag aac Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn 210 ggg ct ctg cag aac acg acg acc ctg act gtc gg agc acg aca aca gag aat gac val Leu Leu Gln Gln Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp 220 acc gag aga gac acg aca aca gag acc acg gtc acc gag acc acg gag acc cca gtc gag acc acg gtc acc ggc ggg Ile Gly Glu Arg Asp Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu acc gag acc acg ggc gcc acc acg tcg gtc ctg tgc ctg ctg ctg ctg Leu Leu Val 250 aaaa acc gcg gcg gcc acc acg gcg gtg tgc agg gac cca gc gc gc gtg gcc cta acc gcc acc ycc ala Val Val Ala Val Ala Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Leu Val 270 acc acc gc ttg gcc gtg gcd gcc acc gtg gcc tgg gcd gcc gcd gcc acc gcc tgg gcc gcd gcc acc gcc tgg gcc gcd gcc acc gcc tgg gcc gcc acc gcc tgg gcd gcd gcc gcd gcc acc gcc tgg gcc gcd gcc acc gcc tgg gcc gcd gcc acc gcc tgc gcc gcd gcc acc gcc tgc gcc gcd gcc acc gcc tgc gcc gcc gcc acc gcc tcc gcc gcc gcc acc gcc tcc gcc gcc gcc acc gcc tccc gccc acc gccca gccca gccca gagcgtgca acccca gacccac acc gccca gagggcccca ccac gccac gaagggcccca gccacgaggcccac gagggcccca gaggggcccca gagggcccca gagggcccca gaggggcccca gagggcccca gaggggcccca gagggcc	Val	ccc Pro	gtc Val	gtc Val	agc Ser	Ala	ccc Pro	cac His	agc Ser	ccc Pro	Ser	cag Gln	gat Asp	gag Glu	ctc Leu	Thr	664
The Asn Lys Thr Asp Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp 175 180 acc gtc ttc ttg aac atg cgg ggc ttg tat gac gtg gtc agc gtg ctg Thr Val Phe Leu Asn Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu 200 agg atc gca cgc agc gtg acc cca agc gtg aac att ggc tgc tgc ata gag aac Arg 11e Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn 210 210 210 210 210 210 210 210 210 210	ttc Phe	acg Thr	tgt Cys	aca Thr	Ser	ata Ile	aac Asn	ggc Gly	tac Tyr	Pro	agg Arg	ccc Pro	aac Asn	gtg Val	Tyr	tgg Trp	712
Thr Val Phe Leu Asn Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu 190 agg atc gca cgg acc ccc agc gtg aac att ggc tgc tgc ata gag aac Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn 200 210 210 210 210 210 210 210 210 210	atc Ile	aat Asn	aag Lys	Thr	gac Asp	aac Asn	agc Ser	ctg Leu	Leu	gac Asp	cag Gln	gct Ala	ctg Leu	Gln	aat Asn	gac Asp	760
Arg Ile Ala Arg Thr Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn 205  gtg ctt ctg cag cag aac ctg act gtc ggc agc cag aca gga aat gac Val Leu Leu Gln Gln Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp 220  atc gga gag aga gac aag atc aca gag aat cca gtc agt acc ggc gag Ile Gly Glu Arg Asp Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu 240  aaa aac gcg gcc acg tgg agc atc ctg gct gtc ctg tgc ctg ctt gtg Leu Val 255  gtc gtg gcg gcc acg tgg agc atc ctg gct gtc ctg tgc ctg ctu Val 255  gtc gtg gcg gcc ata ggc tgg gtg tgc agg gac cga tgc ctc caa 1048  Val Val Ala Val Ala Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln 270  cac agc tat gca ggt gcc tgg gtg agt ccg aga aca gag ctc act 1096  His Ser Tyr Ala Gly Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr 285  gtg gtg tgc cac gtt tgaccggagc tcaccgcca gagcgtgac agggcttccg 1145  ggg gtg sta gct tgaccgcac agggtggac agggttcca agggcttccg 1145  aggaccttggg gcagcccca gaagggcaccc tgctggaca gcttgagcat ggactccaa agctactagaggg 1205  aggacatttggg gcagcccca gaagggcacac tgctgggatcc caggggagaac ctgctgggct 1265  aggaccttggg gcagcccca gaaggaccac tgctgggatcc caggggagaac ctgctgggct 1265	acc Thr	gtc Val	Phe	ttg Leu	aac Asn	atg Met	cgg Arg	Gly	ttg Leu	tat Tyr	gac Asp	gtg Val	Val	agc Ser	gtg Val	ctg Leu	808
Val Leu Leu Gln Gln Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp 235 235 235 235 235 235 235 235 235 235	agg Arg	Ile	gca Ala	cgg Arg	acc Thr	ccc Pro	Ser	gtg Val	aac Asn	att Ile	ggc Gly	Cys	tgc Cys	ata Ile	gag Glu	aac Asn	856
The Gly Glu arg Asp Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu 240  aaa aac gcg gcc acg tgg agc atc ctg gct gtc ctg tgc ctg ctt gtg Lys Asn Ala Ala Thr Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val 255  gtc gtg gcg gtg gcc ata ggc tgg gtg tgc agg gac cga tgc ctc caa 1048 Val Val Ala Val Ala Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln 275  cac agc tat gca ggt gcc tg gct gtg agt ccg aga aca gag ctc act 1096 His Ser Tyr Ala Gly Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr 285  ggc cac gtt tgaccggagc tcaccgcca gagcgtgac agggcttccg 1145 ggc Cac gtt tgaccggagc tcaccgcca gagcgtgac agggcttccg 1145 ggc agcaccac ccgtgagagg ccaggtggca gcttgagcat ggactccag actgcagggg 1205 aggacacttggg gcagcccca gaagggcacac tgctgggtac cagggagaac ctgctgggct 1265	Val	ctt Leu	ctg Leu	cag Gln	cag Gln	Asn	ctg Leu	act Thr	gtc Val	ggc Gly	Ser	cag Gln	aca Thr	gga Gly	aat Asn	Asp	904
Lys Asn Ala Ala Thr Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val 255  gtc gtg gcg gtg gcc ata ggc tgg gtgc agg gac cga tgc ctc caa Val Val Ala Val Ala Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln 270  cac agc tat gca ggt gcc tgg gct gtg agt ccg gag aca gag ctc act His Ser Tyr Ala Gly Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr 285  ggc cac gtt tgaccggagc tcaccgccca gagcgtggac agggcttccg 1145 Gly His Val 300  tgagacgcca ccgtgagagg ccaggtggca gcttgagcat ggactccag actgcagggg 1205 aggcacttggg gcagcccca gaagggcac tgctgagcac cagggagaac ctgctgggct 1265	atc Ile	gga Gly	gag Glu	aga Arg	Asp	aag Lys	atc Ile	aca Thr	gag Glu	Asn	cca Pro	gtc Val	agt Ser	acc Thr	Gly	gag Glu	952
Val Val Ala Val Ala Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln 275  cac agc tat gca ggt gcc tgg gct gtg agt ccg gag aca gag ctc act His Ser Tyr Ala Gly Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr 285  290  ggc cac gtt tgaccggagc tcaccgccca gagcgtggac agggcttccg  1145 300  tgagacgcca ccgtgagagg ccaggtggca gcttgagcat ggactcccag actgcagggg  1205 agcacttggg gcagcccca gaagggccac tgctggatcc cagggagaac ctgctgggct  1265	aaa Lys	aac Asn	gcg Ala	Ala	acg Thr	tgg Trp	agc Ser	atc Ile	Leu	gct Ala	gtc Val	ctg Leu	tgc Cys	Leu	ctt Leu	gtg Val	1000
His Ser Tyr Ala Gly Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr 285  ggc cac gtt tgaccggagc tcaccgccca gagcgtggac agggcttccg  1145 Gly His Val 300  tgagacgcca ccgtgagagg ccaggtggca gcttgagcat ggactcccag actgcagggg  1205  agcacttggg gcagcccca gaaggaccac tgctgggtc cagggagaac ctgctggcgt  1265	gtc Val	gtg Val	Ala	gtg Val	gcc Ala	ata Ile	ggc Gly	Trp	gtg Val	tgc Cys	agg Arg	gac Asp	Arg	tgc Cys	ctc Leu	caa Gln	1048
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	tgag	iacgo	cca c	cgto	gagaç	g co	aggt	ggca	gct	tgaç	gcat	ggad	etecc	ag a	ctgo	agggg	1205
tggctgtgat cctggaatga ggccctttc 1294	agca	icttg	ggg g	cago	cccc	a ga	agga	ccac	tgc	tgga	tcc	cago	ggaga	ac c	tgct	ggcgt	1265
	tggc	tgtg	gat o	ctgo	gaato	ga gg	ccct	ttc									1294

<210> 17

<211> 302

<212> PRT <213> Homo sapiens

<400> 17

Met Arg Leu Gly Ser Pro Gly Leu Leu Phe Leu Leu Phe Ser Ser Leu  $1 \ \ \,$  5

Arg Ala Asp Thr Gln Glu Lys Glu Val Arg Ala Met Val Gly Ser Asp 20 25 30

Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn 35 40 45

Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr  $50 \hspace{1cm} 55 \hspace{1cm} 60 \hspace{1cm}$ 

Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr 65 70 75 80

Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe 85 90 95

Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His 100 105 110

Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val 115 120 125

Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr Phe Thr Cys Thr Ser 145 150 150 Leu Thr Phe Thr Cys Thr Ser 160

Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn 180 185 190

Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr 195 200 205

Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Val Leu Leu Gln Gln 210 215 220

Asn Leu Thr Val Gly Ser Gln Thr Gly Asn Asp Ile Gly Glu Arg Asp 225  $\phantom{\bigg|}230\phantom{\bigg|}235\phantom{\bigg|}235\phantom{\bigg|}$ 

Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr  $245 \hspace{1.5cm} 250 \hspace{1.5cm} 255$ 

Trp Ser Ile Leu Ala Val Leu Cys Leu Leu Val Val Val Ala Val Ala 260 265 270

Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly 275 280 285

Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr Gly His Val 290 295 300

<210> 18

<211> 302 <212> PRT

<213> Homo sapiens

<400> 18

Arg Ala Asp Thr Gln Glu Lys Glu Val Arg Ala Met Val Gly Ser Asp
20 25 30

Val Glu Leu Ser Cys Ala Cys Pro Glu Gly Ser Arg Phe Asp Leu Asn 35 40 45

Asp Val Tyr Val Tyr Trp Gln Thr Ser Glu Ser Lys Thr Val Val Thr 50 60

Tyr His Ile Pro Gln Asn Ser Ser Leu Glu Asn Val Asp Ser Arg Tyr 65 70 75 80

Arg Asn Arg Ala Leu Met Ser Pro Ala Gly Met Leu Arg Gly Asp Phe  $85 \hspace{0.5cm} 90 \hspace{0.5cm} 95 \hspace{0.5cm}$ 

Ser Leu Arg Leu Phe Asn Val Thr Pro Gln Asp Glu Gln Lys Phe His

Cys Leu Val Leu Ser Gln Ser Leu Gly Phe Gln Glu Val Leu Ser Val 115 120 125

Glu Val Thr Leu His Val Ala Ala Asn Phe Ser Val Pro Val Val Ser 130 135 140

Ala Pro His Ser Pro Ser Gln Asp Glu Leu Thr Phe Thr Cys Thr Ser

145 150 155 160

Ile Asn Gly Tyr Pro Arg Pro Asn Val Tyr Trp Ile Asn Lys Thr Asp 165 170 175

Asn Ser Leu Leu Asp Gln Ala Leu Gln Asn Asp Thr Val Phe Leu Asn 180 185 190

Met Arg Gly Leu Tyr Asp Val Val Ser Val Leu Arg Ile Ala Arg Thr 195 200 205

Pro Ser Val Asn Ile Gly Cys Cys Ile Glu Asn Val Leu Leu Gln Gln 210 215 220

Lys Ile Thr Glu Asn Pro Val Ser Thr Gly Glu Lys Asn Ala Ala Thr 245 250 255

Ile Gly Trp Val Cys Arg Asp Arg Cys Leu Gln His Ser Tyr Ala Gly 275 280 285

Ala Trp Ala Val Ser Pro Glu Thr Glu Leu Thr Gly His Val 290 295 300

<400> 19

Met Gln Leu Lys Cys Pro Cys Phe Val Ser Leu Gly Thr Arg Gln Pro 1  $\phantom{\bigg|}$  5  $\phantom{\bigg|}$  10  $\phantom{\bigg|}$  15

Val Trp Lys Lys Leu His Val Ser Ser Gly Phe Phe Ser Gly Leu Gly 20 25 30

Leu Phe Leu Leu Leu Ser Ser Leu Cys Ala Ala Ser Ala Glu Thr  $35 \hspace{1cm} 40 \hspace{1cm} 45 \hspace{1cm}$ 

Glu Val Gly Ala Met Val Gly Ser Asn Val Val Leu Ser Cys Ile Asp 50 55 60

Pro His Arg Arg His Phe Asn Leu Ser Gly Leu Tyr Val Tyr Trp Gln 65 70 75 80

<sup>&</sup>lt;210> 19 <211> 322

<sup>&</sup>lt;212> PRT

<sup>&</sup>lt;213> Mus musculus

Ile Glu Asn Pro Glu Val Ser Val Thr Tyr Tyr Leu Pro Tyr Lys Ser Pro Gly Ile Asn Val Asp Ser Ser Tyr Lys Asn Arg Gly His Leu Ser Leu Asp Ser Met Lys Gln Gly Asn Phe Ser Leu Tyr Leu Lys Asn Val 115 Thr Pro Gln Asp Thr Gln Glu Phe Thr Cys Arg Val Phe Met Asn Thr Ala Thr Glu Leu Val Lys Ile Leu Glu Glu Val Val Arg Leu Arg Val Ala Ala Asn Phe Ser Thr Pro Val Ile Ser Thr Ser Asp Ser Ser Asn Pro Gly Gln Glu Arg Thr Tyr Thr Cys Met Ser Lys Asn Gly Tyr Pro Glu Pro Asn Leu Tyr Trp Ile Asn Thr Thr Asp Asn Ser Leu Ile Asp 195 200 Thr Ala Leu Gln Asn Asn Thr Val Tyr Leu Asn Lys Leu Gly Leu Tyr 210 Asp Val Ile Ser Thr Leu Arg Leu Pro Trp Thr Ser Arg Gly Asp Val Leu Cys Cys Val Glu Asn Val Ala Leu His Gln Asn Ile Thr Ser Ile Ser Gln Ala Glu Ser Phe Thr Gly Asn Asn Thr Lys Asn Pro Gln Glu Thr His Asn Asn Glu Leu Lys Val Leu Val Pro Val Leu Ala Val Leu 275 Ala Ala Ala Ala Phe Val Ser Phe Ile Ile Tyr Arg Arg Thr Arg Pro His Arg Ser Tyr Thr Gly Pro Lys Thr Val Gln Leu Glu Leu Thr Asp 305 310 315

His Ala

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Phe Ser Leu Leu Asn Val Thr Pro Gln Asp Gln Phe Cys Val Leu Val
Leu Val Ala Ala Asn Phe Ser Pro Val Ser Ser Glu Thr Thr Cys Ser
                    70
Asn Gly Tyr Pro Pro Asn Tyr Trp Ile Asn Thr Asp Asn Ser Leu Asp
Ala Leu Gln Asn Thr Val Leu Asn Gly Leu Tyr Asp Val Ser Leu Arg
Thr Cys Cys Glu Asn Val Leu Gln Asn Thr Ser Gln Gly Lys Lys Leu
Ala Val Leu Val Ile Arg Arg Ser Tyr Gly Val Glu Leu Thr His
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      Homo sapiens
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      (1)..(165)
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      (166) . . (762)
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teegtgaaca etgaaegega ggaetgttaa etgtttetge	g caaac atg aag tca ggc 177 Met Lys Ser Gly 1
ctc tgg tat ttc ttt ctc ttc tgc ttg cgc att Leu Trp Tyr Phe Phe Leu Phe Cys Leu Arg Ile 5 10 10 15	
gaa atc aat ggt tct gcc aat tat gag atg ttt Glu Ile Asn Gly Ser Ala Asn Tyr Glu Met Phe $25 \hspace{1cm} 30$	
ggt gta caa att tta tgc aaa tat cct gac att Gly Val Gln Ile Leu Cys Lys Tyr Pro Asp Ile $40$ $45$	
atg cag ttg ctg aaa ggg ggg caa ata ctc tgc Met Gln Leu Leu Lys Gly Gly Gln Ile Leu Cys 55 60	
aaa gga agt gga aac aca gtg tcc att aag agt Lys Gly Ser Gly Asn Thr Val Ser Ile Lys Ser 70 75	t ctg aaa ttc tgc cat 417 r Leu Lys Phe Cys His 80
tct cag tta tcc aac aac agt gtc tct ttt ttt Ser Gln Leu Ser Asn Asn Ser Val Ser Phe Phe 85 90 95	
cat tot cat goc aac tat tac ttc tgc aac cta His Ser His Ala Asn Tyr Tyr Phe Cys Asn Let $105$ $110$	
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